

1 WHAT IS CLAIMED IS:

1 1. A vacuum cleaner comprising:

2 a rear housing having an upper portion, a middle  
3 portion, and a lower portion;

4 an upper front cover engaged with said upper  
5 portion of said rear housing;

6 a bag cover releasably engaged with said middle  
7 portion of said rear housing, wherein said bag cover and  
8 said rear housing define a suction chamber for enclosing a  
9 filter bag;

10 a base unit providing a lower enclosure, said  
11 base unit pivotally secured to said rear housing;

12 a motor and motor housing disposed within said  
13 base unit;

14 a drive assembly disposed within said base unit  
15 and selectively coupled to said motor;

16 a nested wand releasably retained along the  
17 exterior of said rear housing, said wand having an upper  
18 portion and a lower portion;

19 a lower air conduit extending between said base  
20 unit and said lower portion of said nested wand; and

21 an upper air conduit extending between said upper  
22 portion of said nested wand and said suction chamber.

1 2. The vacuum cleaner of claim 1, wherein said motor  
2 housing defines an aperture and said motor includes motor  
3 terminals accessible through said aperture, said vacuum  
4 cleaner further comprising;

5 a power cord for providing electrical power to  
6 said motor, said power cord having a first end secured to  
7 said vacuum cleaner and a second end adapted for connecting  
8 to an electrical power source; and

9 electrical conductors extending between said  
10 first end of said power cord and said motor terminals;

11 wherein said motor housing includes a seal  
12 disposed in said aperture defined in said housing, said

13 seal being formed from a flexible and resilient material.

1 3. The vacuum cleaner of claim 1 wherein said motor  
2 housing includes (i) a tangentially and outwardly extending  
3 air duct projecting from said housing and (ii) an isolation  
4 wall disposed within said housing, said isolation wall  
5 positioned proximate to an entrance of said air duct  
6 thereby blocking access to said motor and serving as a  
7 sound insulating barrier.

1 4. The vacuum cleaner of claim 1 wherein said rear  
2 housing includes (i) a main panel, (ii) a support ledge  
3 projecting from said main panel of said rear housing, and  
4 (iii) a locking ledge also projecting from said main panel  
5 of said rear housing, said locking ledge spaced from said  
6 support ledge and oriented generally parallel to said  
7 support ledge, said locking ledge projecting over only a  
8 portion of said support ledge, thereby defining a remaining  
9 portion of said support ledge, said support ledge defining  
10 an aperture in said remaining portion, said vacuum cleaner  
11 further comprising;

12 a releasably locking hose adapter disposed  
13 between said upper air conduit and said suction chamber,  
14 said hose adapter comprising: (i) a cylindrical body  
15 insertable within said aperture defined in said support  
16 ledge, and (ii) a radially projecting lip extending around  
17 at least a portion of said cylindrical body, said lip being  
18 insertable between said locking ledge and said support  
19 ledge.

1 5. The vacuum cleaner of claim 1 wherein said rear  
2 housing is pivotable with respect to said base unit from an  
3 upright position wherein said rear housing is generally  
4 transverse to said base unit and oriented at an angle of  
5 about 8-1/2 degrees from vertical and disposed over said  
6 base unit, to a fully reclined position wherein said rear  
7 housing is approximately coplanar with said base unit.

1           6. The vacuum cleaner of claim 1 wherein said rear  
2 housing is pivotable with respect to said base unit from an  
3 upright position to a fully reclined position, said vacuum  
4 cleaner further comprising;  
5           a handle projecting upward from said rear  
6 housing; and  
7           a tilt switch in electrical association with said  
8 motor wherein said tilt switch opens to break an electrical  
9 power circuit to said motor when said rear housing is  
10 placed in said upright position.

1           7.    The vacuum cleaner of claim 1 further comprising;  
2           a handle projecting upward from said rear  
3 housing, said handle comprising a lower portion and an  
4 upper portion, said lower portion of said handle disposed  
5 between and contacting said upper front cover and said rear  
6 housing.

1           8.    The vacuum cleaner of claim 1 wherein said drive  
2   assembly includes a drive wheel operably coupled to said  
3   motor.

1           9.     The vacuum cleaner of claim 8 wherein said drive  
2     assembly further includes a clutch assembly operatively  
3     disposed between said drive wheel and said motor.

1           10. A vacuum cleaner comprising:  
2           a lower base unit;  
3           an upper enclosure for housing a filter bag, said  
4 upper enclosure pivotable with respect to said lower base  
5 unit;  
6           a motor disposed within said lower base unit;  
7           a power cord having a first end, affixed to at  
8 least one of said upper enclosure and said lower base unit,  
9 and a second end adapted for connecting to an electrical  
10 power source;

11 electrical conductors extending between said  
12 first end of said power cord and said motor, said  
13 electrical conductors defining an electrical power circuit  
14 to said motor; and  
15 a thermal cutoff assembly including a temperature  
16 sensor disposed proximate to said motor for measuring the  
17 temperature of said motor, said thermal cutoff assembly  
18 further including a switching element in electrical  
19 association with said electrical conductors, wherein upon  
20 said temperature sensor sensing a temperature greater than  
21 a predetermined temperature setpoint, said switching  
22 element opens said electrical power circuit.

1 11. The vacuum cleaner of claim 10 further  
2 comprising:

3 a drive assembly disposed within said lower base  
4 unit and in operable engagement with said motor.

1 12. The vacuum cleaner of claim 10 wherein said upper  
2 enclosure defines an exhaust air opening, said vacuum  
3 cleaner further comprising:

4 a secondary filter releasably retained along a  
5 rear face of said upper enclosure and in communication with  
6 said exhaust airflow opening.

1 13. The vacuum cleaner of claim 10 wherein said upper  
2 enclosure is pivotable with respect to said lower base unit  
3 from an upright position to a fully reclined position, said  
4 vacuum cleaner further comprising:

5 a handle projecting upward from said upper  
6 enclosure; and

7 a tilt switch in electrical association with said  
8 motor wherein said tilt switch opens said electrical power  
9 circuit to said motor when said upper enclosure is placed  
10 in said upright position.

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1 14. The vacuum cleaner of claim 10 wherein said upper  
2 enclosure includes a front portion and a rear portion, said  
3 front and said rear portions when engaging each other  
4 define a handle aperture, said at least one of said front  
5 and said rear portions including a cradle structure, said  
6 vacuum cleaner comprising:

7 a handle member having a first end disposed in  
8 said cradle structure and disposed between said front and  
9 said rear portions of said upper enclosure, said handle  
10 extending through said handle aperture to a second end.

1 15. A vacuum cleaner comprising:

2 a lower base unit;

3 an upper enclosure for retaining a filter bag,  
4 said upper enclosure pivotable with respect to said lower  
5 base unit, said upper enclosure defining a suction chamber,  
6 an exhaust chamber, and an exhaust opening providing access  
7 from the exterior of said upper enclosure to said exhaust  
8 chamber,

9 a motor and fan assembly disposed within said  
10 upper enclosure, said motor and fan assembly disposed in  
11 airflow communication between said suction chamber and said  
12 exhaust chamber; and

13 a detachable filter assembly adapted to  
14 releasably engage said upper enclosure proximate said  
15 exhaust opening.

1 16. The vacuum cleaner of claim 15 wherein said upper  
2 enclosure includes a suction chamber inlet, a suction  
3 chamber outlet, and an exhaust chamber inlet, said vacuum  
4 cleaner further comprising:

5 a motor housing within which is disposed said  
6 motor and fan assembly, said motor housing disposed in said  
7 upper enclosure and including an air intake duct in  
8 communication with said suction chamber outlet, and an air  
9 exhaust duct in communication with said exhaust chamber  
10 inlet;

11 a lower airflow conduit extending from and in  
12 communication with said lower base unit; and  
13 an upper airflow conduit assembly extending  
14 between said suction chamber inlet and a distal end of said  
15 lower airflow conduit.

1 17. The vacuum cleaner of claim 16 wherein said upper  
2 enclosure further includes a partitioning wall separating  
3 said suction chamber from a region of said upper enclosure  
4 within which is disposed said motor housing, said  
5 partitioning wall defining said suction chamber outlet,  
6 said air intake duct engaging said partitioning wall at  
7 said suction chamber outlet along an unsealed interface.

1 18. The vacuum cleaner of claim 16 wherein said air  
2 intake duct engages said motor housing along an unsealed  
3 interface.

4 19. The vacuum cleaner of claim 16 wherein said motor  
5 housing defines an aperture and said motor includes motor  
6 terminals projecting through said aperture, wherein said  
7 motor housing includes a seal disposed in said aperture and  
8 sealingly around said motor terminals, said seal being  
9 formed from a flexible and resilient material.

1 20. The vacuum cleaner of claim 16 wherein said motor  
2 housing includes an isolation wall disposed within said  
3 housing and proximate to an entrance of said air intake  
4 duct thereby blocking access to said motor and serving as a  
5 sound insulating barrier.

1 21. The vacuum cleaner of claim 16 wherein said motor  
2 housing includes a collar for retaining a bearing for said  
3 motor, said vacuum cleaner further comprising:  
4 an airflow conduit extending from said collar to  
5 said air intake duct.

1 22. The vacuum cleaner of claim 16 wherein said upper  
2 enclosure includes (i) a main panel, (ii) a support ledge  
3 projecting from said main panel, and (iii) a locking ledge  
4 also projecting from said main panel, said locking ledge  
5 spaced from said support ledge and oriented generally  
6 parallel to said support ledge, said locking ledge  
7 projecting over only a portion of said support ledge  
8 thereby defining a remaining portion of said support ledge,  
9 said support ledge defining said suction chamber inlet in  
10 said remaining portion, said vacuum cleaner further  
11 comprising:

12 a releasably locking hose adapter disposed  
13 between said upper airflow conduit and said suction  
14 chamber, said hose adapter comprising (i) a cylindrical  
15 body insertable within said suction chamber inlet defined  
16 in said support ledge, and (ii) a radially projecting lip  
17 extending around at least a portion of said cylindrical  
18 body, said lip being insertable between said locking ledge  
19 and said support ledge.

1 23. A vacuum cleaner comprising:  
2 a lower base enclosure;  
3 an upper enclosure having internal walls dividing  
4 said upper enclosure into a suction chamber, and exhaust  
5 chamber, and a motor chamber;  
6 a motor and fan assembly disposed in a shroud,  
7 said shroud disposed in said motor chamber of said upper  
8 enclosure;  
9 an air intake duct extending between and in  
10 communication with said suction chamber and said shroud,  
11 wherein said air intake duct engages at least one  
12 of (i) said wall defining said suction chamber along an  
13 unsealed interface, and (ii) said shroud along an unsealed  
14 interface.

1 24. A vacuum cleaner comprising:  
2 a lower base enclosure having a first suction

3 chamber in contact with a floor to be cleaned,  
4 an upper enclosure having internal walls dividing  
5 said upper enclosure into a second suction chamber, an  
6 exhaust chamber, and a motor chamber;  
7 a drive module having a drive motor in said lower  
8 base enclosure, at least said drive motor being encased in  
9 a shroud;  
10 a passage between said drive module shroud and  
11 said second suction chamber.

1 25. The vacuum cleaner of claim 24 wherein said  
2 passage between said drive module shroud and said suction  
3 chamber includes a duct between said drive module shroud  
4 and said first suction chamber and further included a  
5 passage between said first suction chamber and said second  
6 suction chamber.

1 26. The vacuum cleaner of claim 23 further  
2 comprising:

3 electrical conductors for providing electrical  
4 power to said motor, said electrical conductors defining a  
5 power circuit;

6 a thermal cutoff assembly including a temperature  
7 sensor disposed proximate to said motor for measuring the  
8 temperature of said motor, said thermal cutoff assembly  
9 further including a switching element in electrical  
10 association with said electrical conductors, wherein upon  
11 said temperature sensor sensing a temperature greater than  
12 a predetermined temperature setpoint, said switching  
13 element opens said electrical power circuit and disables  
14 operation of said motor.

1 27. The vacuum cleaner of claim 23 wherein said  
2 shroud includes a collar for retaining a bearing for said  
3 motor, said vacuum cleaner further comprising:

4 an airflow conduit extending from said collar to  
5 said air intake duct.



1           28. The vacuum cleaner of claim 23 wherein said upper  
2 enclosure includes a support ledge, a locking ledge spaced  
3 from said support ledge and oriented generally below and  
4 parallel to said support ledge, said support ledge defining  
5 an aperture, said vacuum cleaner further comprising:  
6           an upper airflow conduit assembly extending  
7 between said suction chamber and said lower base enclosure;  
8 and  
9           a hose adapter disposed between said upper  
10 airflow conduit and said suction chamber, said hose adapter  
11 comprising (i) a hollow member insertable within said  
12 aperture defined in said support ledge; and (ii) an  
13 outwardly projecting lip extending around at least a  
14 portion of the periphery of said hollow member, said lip  
15 being insertable between said locking ledge and said  
16 support ledge.

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